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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,765	09/15/2003	David H. Kil	ARC012010000	1510

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EXAMINER

SIMS, JASON M

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 07/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,765

Applicant(s)

KIL, DAVID H.

Examiner

Jason M. Sims

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 19-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 1-3, 6, 9-11 and 15-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/15/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/23/06, 7/02/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's election without traverse of group I, claims 1-18 in the reply filed on 4/20/2006 is acknowledged.

Claims 19-29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventive group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 4/20/2006.

Claims 1-18 are the current set of claims hereby under examination.

Specification

The disclosure is objected to because of the following informalities:

The disclosure is objected to because on page 18 it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Appropriate correction is required.

Claim Objections

Claims 1-3, 6, 9-11, and 15-17 are objected to because of the following informalities: The cited claims contain the acronym ROI, which should be accurately defined via amending the full name in parenthesis. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-2, 4-6, 8-9, 11, 13-15, and 17 are rejected under 35 U.S.C. 101

because the claimed invention is directed to non-statutory subject matter.

Under the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (published in the O.G. notice (1300 OG 142) on 11/22/2005) a method that does not result in a physical transformation of matter MAY be statutory where it recites a concrete, tangible and useful result; i.e. a practical application.

In the instant case, the claims are directed to a method of image analysis comprising transforming an image into a feature space, extracting features, ranking the extracted features, classifying the image into regions of interest. In the instant case, the method of claims does not result in a physical transformation of matter, nor is any concrete, tangible and useful result produced/recited. Therefore, these claims are not statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-2, 4-6, 8-9, 11, 13-15, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Akselrod et al. (US P/N 6, 858, 007).

The claims are directed to a method of image analysis comprising transforming an image into a feature space, extracting features, ranking the extracted features, classifying the image into regions of interest, and transmitting the regions of interest for laser capture microdissection.

Akselrod et al. teaches claims 1, 11, and 17 at col. 3, lines 5-10, col. 5, lines 29-50, col. 6, lines 25-45, col. 7, lines 2-20 and lines 25-54, col. 9, lines 39-67, col. 10, lines 10-18 and lines 39-51, col. 11, lines 50-61, and col. 15, lines 19-25. Akselrod et al. discusses at col. 3, obtaining a cross-sectional image of an adnexal mass, which represents receiving an image. Akselrod et al. discusses at col. 6, defining a set of parameters of the obtained image and presenting them in a feature space, which represents transforming the image into a feature space. Akselrod et al. discusses at col. 15, selecting a ROI at a pixel level of processing. Akselrod et al. discusses at col. 9, a process of segmentation in image analysis, which represents selecting an ROI and non-ROI and extracting features from the ROI. Akselrod et al. discusses at col. 5,

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classifying a mass, which requires extracting information from the obtained image, which represents extracting features from the ROI. Akselrod et al. discusses at col. 7, extracting boundaries using a edge detection algorithm, which represents extracting features of the ROI at a pixel level. Additionally, Akselrod et al. discusses at col. 7, extracting boundaries of an entire object and applying thresholds to sub-ranges of the object, which has been converted into a histogram, and includes a comparison between objects and background information about the image which represents selecting at least one non-ROI at a pixel level of processing and extracting features from the non-ROI at a pixel level of processing where the background regions are really non-ROI regions. Akselrod et al. discusses at col. 10 and col. 14, using a minimum cross entropy thresholding, MCE, to rank gray scale values of pixels, which represent extracted features and making a histogram of the object image, which represents ranking the extracted features based on feature performance and recording the ranked extracted features. In addition, this algorithm is used to distinguish between tissue and fluid, a segmentation process which represents choosing a classification algorithm and classifying the image into regions of interest and recording the ROIs based on pixel processing.

Claim 2 is taught by Akselrod et al. at col. 10, lines 10-18 and lines 39-51 and col. 14. Akselrod et al. discusses using a classifying algorithm, MCE, in a segmentation process, which segments an obtained image into regions of tissue and fluid, which represents segmenting an image into ROIs and non-ROIs and making a histogram and

applying a thresholding program for classifying, which represents selecting one or more pixels from the image.

Claims 4-5, 8, 13, and 14 are taught by Akselrod et al. at col. 15, lines 19-25 and col. 7. Akselrod et al. discusses various sizes of windows being tested and computed and analyzing an obtained image by using edge and region detection algorithms to detect a region of an image and then doing further analysis by analyzing sub-regions of the region of the image, both of which represent a second and third level of processing comprising sub-image processing and object processing.

Claim 6 is taught by Akselrod et al. as applied to combination of claims 1, 4, and 5 discussed above.

Claims 9 and 15 are taught by Akselrod et al. at col. 7, lines 35-54. Akselrod et al. discusses using a edge detection algorithm to detect an object, which represents object processing where at least one polygonal ROI is processed.

Claim 11 is taught by Akselrod et al. as applied to the combination of claims 1 and 8-9 discussed above.

Claim 17 is taught by Akselrod et al. as applied to the combination of claims 1 and 14-15 discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3, 7, 10, 12, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akselrod et al. (US P/N 6, 858, 007) as applied to claims 1, 6, 11, and 17 above, and further in view of Levenson et al. (US P/N 6, 750, 964).

Akselrod et al discusses at col. 6, lines 55-64 analyzing a 3-D image. This invention relates to diagnosing lumps in the breast, which are cancerous and would need to be removed. Akselrod et al. does not teach a method of utilizing image analysis and the edge and region detection algorithms for use in a laser capture microdissection.

Levenson et al. at col. 2, lines 45-61 teaches a method of laser capture microdissection after target image analysis.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to combine the analysis and diagnosing methods taught by Akselrod et al. with the method of laser capture microdissection taught by Levenson et al. because after diagnosing an individual with cancer it is a necessary step to remove the benign or potentially malignant tumor from the patient. In addition, it would be an inherent step in the process where the information obtained by performing the image analysis steps of Akselrod et al. would be transmitted and communicated to the station used to perform the laser capture microdissection.

Conclusion

No claims allowed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Sims, whose telephone number is (571)-272-7540.

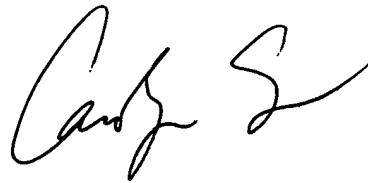
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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew Wang can be reached via telephone (571)-272-0811.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (571)-273-8300.

Any inquire of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tiffany Tabb, whose telephone number is (571)-272-0556.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Av 1631 examiner

7/24/06